Scrap Metal Recycling Safety Talk

Scrap metal recycling is more than just moving and melting piles of old steel, it's a carefully managed process that transforms discarded materials into reusable assets. Each step, from unloading and sorting to cutting, shredding, and melting, carries its own set of challenges. Cranes, torches, furnaces, and shredders keep the work moving, but they also introduce serious risks if not handled with care.

Process Overview & Associated Hazards

Scrap metal recycling involves multiple steps: unloading and loading of scrap, sorting, cutting or breaking, compaction or shredding, melting, and chemical separation.

- **Loading/unloading**: Use of cranes, conveyors, heavy trucks, or forklifts may cause exposure to struck-by hazards, pinch points, or crushing risks.
- **Sorting/separating**: Manual sorting may present cuts or punctures from sharp or jagged metal edges. Some materials may carry chemical residues, oils, or contaminants.
- **Cutting/Breaking**: Use of gas torches, plasma, or hydraulic shears introduces risks including burns, fire, mechanical injury, and fumes or metal vapors.
- **Compacting/shredding**: Hydraulic balers and shredders pose crushing hazards, projectiles, and dust generation. Guards and sensors must prevent unintended access to moving parts.
- **Smelting and refining**: Furnace operations can generate fumes, smoke, and airborne metal particulates or vapors. Chemical refining steps (e.g. leaching, plating) introduce further hazards from reagents.

Controls & Safety Measures

To address these hazards, apply the hierarchy of controls (elimination, substitution, engineering, administrative, PPE).

1. **Engineering Controls**
    - Install guards and shields on machinery to prevent contact with moving parts and to intercept projectiles.
    - Use sensors or automatic shutoff systems to detect human presence and stop dangerous motion.
    - Provide local exhaust or general ventilation systems that remove fumes, dust, and airborne contaminants before they reach breathing zones.
    - Use filtration systems (e.g. scrubbers, electrostatic precipitators) to clean exhaust emissions.
2. **Administrative Controls**
    - Always follow safe work procedures, such as draining fluids from appliances or vehicles before cutting or compressing.
    - Assist in pre-operation inspections and regular maintenance of machinery.
    - Follow a hazard assessment process before any new procedure or material is introduced.

- Attend training on safe handling, recognition of hazards, and emergency procedures.
- Adhere to any medical monitoring program for exposures to metals such as lead or arsenic.

3. **Personal Protective Equipment (PPE)**
    - Wear hard hats, protective footwear, high-visibility clothing, cut-resistant gloves, and eye/face protection.
    - Use respiratory protection where engineering controls cannot fully reduce airborne hazards.
    - Wear appropriate hearing protection (earplugs or earmuffs) where noise levels exceed safe thresholds.

Housekeeping & Workplace Practices
Good housekeeping reduces many secondary hazards:

- Clear aisles, walkways, and work areas of debris and scrap to prevent trips and falls.
- Install clearly labelled waste and scrap containers close to work areas to discourage accumulation on floors.
- Clean spills immediately using absorbent materials or approved cleanup methods.
- Store materials safely: stacking on firm bases, cross-tying where needed, and avoiding obstruction of exits or safety equipment.

Conclusion

Scrap metal recycling is demanding work, blending heavy machinery, heat, sharp edges, and powerful processes into one operation. When hazards are recognized early and controls are consistently applied, the risks become manageable, and the workflow remains steady.

Discussion Points

1. *What can go wrong during the separating and smelting processes?*
2. *Why is it important to follow a* hazard assessment process before any new procedure or material is introduced.